First Report of Fusarium oxysporum f. sp. radicis-cucumerinum causing wilt on Cucumber (Cucumis sativus L.) in Italy.

First Report of *Fusarium oxysporum* f. sp. *radicis-cucumerinum* Causing Wilt on Cucumber (*Cucumis sativus* L.) in Italy. A. Garibaldi, G. Gilardi, G. Ortu and M. L. Gullino. Center of Competence AGROINNOVA and DISAFA, University of Torino, Largo Braccini 2, 10095 Grugliasco, Italy.

During summer 2015, in a commercial farm near Verona (Veneto region, eastern Italy), 25 to 40 % of 5-month-old plants of *Cucumis sativus* cv. Caman grown under a 4 ha plastic house showed symptoms of a previously unknown wilt. Symptoms consisted of chlorosis, yellowing and wilting of stems. At the basis of affected stems, a whitish-light orange mycelium appeared while vessels were discolored. Finally, affected tissues collapsed and plants died. Using potato dextrose agar (PDA) added with 25 mg/liter of streptomycin sulphate, a fungus was consistently isolated from affected tissues.The mycelium produced sporodochia. Unicellular, ovoid-elliptical microconidia measured 4.9 to 10.9×2.1 to 4.5 (average 7.1×3.5) µm, while, macroconidia were 3-septate, slightly curved, and measured 19.3 to 25.6×2.8 to 5.1 (average 18.7×4.0) µm. Chlamydospores were, terminal, and intercalary, smooth walled, single or in pairs, in clusters or in chain, and measured 7.8 to 13.9 (average 8.8) µm in diam. Such characteristics are typical of *Fusarium oxysporum* (Leslie et al. 2006). DNA was extracted from a culture of the single spore isolate. Amplification of the Elongation factor 1 alpha gene (EF1α) with primers EF1/EF2 (O'Donnel et al. 1998) produced a 690 bp amplicon (GenBank Accession No. KU743928). BLASTn analysis of the sequence obtained a 100% homology with *F. oxysporum oxysporum* KF574861. The *forma specialis radicis-cucumerinum* was confirmed by amplification with the specific primers ForcF1 and ForcR2 designed by Lievens et al in 2007. Pathogenicity tests were conducted on 7-day-old plants of cucumber cv. Caman grown into 12 liter pots filled with steamed potting mix (sphagnum peat: perlite: pine bark: clay; 50:20:20:10) by using three monoconidial isolates of the pathogen. The isolate FORC AFu-68A of *F. oxysporum* f. sp. *radicis-cucumerinum* was used to comparison (Vakalounakis 1996). Plants were inoculated by root dipping in a conidial suspension ($1x10^6$ conidia/ml), obtained from cultures grown on PDA. Ten plants/pot with a total of thirty plants/isolate were used. Roots of control plants were dipped into sterile deionized water. All plants were maintained at 25 to 27°C. First symptoms of Fusarium wilt appeared on stems of inoculated plants, 7 days after the artificial inoculation; while 90 to 100% of the inoculated plants died 21-28 days after the inoculation. All isolates tested showed the same virulence of the reference isolate. Non-inoculated plants remained healthy. *F. oxysporum* f. sp. *radicis-cucumerinum* was constantly reisolated from inoculated plants, while reisolations attempted from controls failed. The pathogenicity test was conducted twice with the same results. The pathogenic variation among the six isolates obtained from wilted cucumber plants need to be further investigated. To our knowledge

this is the first report of *F. oxysporum* f. sp. *radicis-cucumerinum* on cucumber in Italy. The disease has been reported in Greece (Vakalounakis 1996) as well as in other countries. The pathogen could cause significant economic losses on cucumber as well as on other hosts in Italy.

References:

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